

Remarks

In addition to the further remarks herein, Applicant respectfully incorporates by reference the various remarks from Applicant's previous filings, including Applicant's Remarks section from Applicant's February 15, 2007 Amendment and Applicant's subsequent filings.

Claims 2, 3, 5-7, and 35-42 were previously pending. By virtue of the amendments below, Applicant is amending Claims 2 and 3, and adding Claims 43-53 (those added claims were filed recently in a proposed amendment, but were not entered by the Examiner).

Accordingly, after entry of the amendments below, Claims 2, 3, 5-7, and 35-53 will be pending.

The Examiner's previous "substantive" rejections were based in large part on U.S. Patent No. 4,037,626 issued to Roberts. As Applicant has explained in previous filings and as Applicant demonstrated in the recent videoconference with the Examiner, Roberts does not appear to disclose or make obvious ANY (or very few) of the elements claimed in Applicant's claims. Among other things, Roberts expressly states that his joint is different from "simple butt joints" that are "highly susceptible to leakage" when carrying pressurized fluids. See, for example, Roberts at col. 1, l. 27-40:

"Composite tubes as disclosed, for example, in U.S. Pat. No. 3,330,303, comprise an inner smooth-walled tube and an outer corrugated tube and possess improved crush resistance. Sections of such composite tubes are joined by means of a resilient collar fitted over the outer corrugations of adjacent sections. Alternatively, joining is effected by shaping the outer corrugated tube to provide a bell and spigot arrangement. **In both instances, the smooth-walled**

inner tube is joined in a simple butt fit. Such an arrangement
may serve as a satisfactory conduit for electrical wires and cables but
would be highly susceptible to leakage in the conveyance of
fluids, particularly those under pressure." (Emphasis added).

Among other things, certain of the claims as now pending even expressly require a "butt joint". Based on the foregoing and other things, Applicant respectfully submits that this express limitation even more clearly distinguishes over the Roberts references and any other art with which the Examiner appears to be concerned.

By way of further remarks, Applicant renews several points from his previous filings. Applicant's Claim 2 requires "a first female engagement structure formed from the sidewall corrugation pattern of the first piece of pipe." Because the Examiner does not identify in the Office Action the specific features of Roberts asserted as teaching this (or any of the other) elements of Applicant's claim, Applicant is left to speculate based on Roberts' specification and drawings. In that regard, Roberts' only apparent teaching of a "corrugated" pipe is pipe 11. **Those corrugations 11 have no "engagement" function at all. Instead, Roberts' corrugations 11 "slide over and provide crush resistance" to the actual joint/"engagement" of Roberts' patent (col. 1, l. 55-57; col. 2, l. 65-66). Thus, Roberts does NOT teach or suggest or otherwise make obvious Applicant's claimed "female engagement structure" formed from a sidewall corrugation pattern.**

The same shortcomings exist in Roberts with respect to Applicant's claimed "male engagement structure formed from the sidewall corrugation pattern of the second piece of pipe."

No such "male engagement structure" formed from sidewall corrugation is taught or made obvious by Roberts.

Roberts' shortcomings become even more clear in connection with other of Applicant's Claim 2 limitations: the first female structure not only has to (1) receive the male structure, but also (2) grip the male structure with sufficient compressive force to "prevent its inadvertent removal from engagement with the first female structure." As noted above, **nothing in Roberts teaches or makes obvious ANY engagement of structures formed from sidewall corrugation patterns.**

Instead, the teaching of Roberts (as stated in the abstract, for example) is for a "pipe structure [that] includes an outer corrugated pipe, an inner smooth-walled liner, and joining means including a bell fitting at one end of the liner extending beyond the outer corrugated pipe and a spigot fitting at the other end." Thus, Roberts' "joining means" (its ENGAGEMENT structures) are something **OTHER** than the corrugated pipe 11. Accordingly, Roberts does not anticipate or make obvious those of Applicant's claims that are directed to a joint formed FROM the corrugations of pipe outside a butt-jointed inner liner.

Specifically, Roberts teaches that two such pipes may be temporarily joined or sealed by using an O-ring seal 16 (Fig. 4; col. 3, l. 4-10), or may be permanently joined ("engaged" with each other) by solvent welding seal 16 (Fig. 3; col. 3, l. 10-23). As indicated above, the pipe structure of Roberts is clearly defined as having an inner liner pipe and an outer corrugated pipe. As shown in Figure 3 of Roberts, the pipe joint of Roberts is formed by joining the bell fitting 13 at one end of a **inner liner** 10 with the spigot portion 14 at the other end of another **inner liner** 10. Thus, in comparing the present invention and Roberts, the Roberts joint method utilizes the

pipe line having a typical bell (male end) and spigot (female) to form a pipe joint by joining the opposite ends of the **liner** of two different pipes. In other words, Roberts does NOT teach to form ANY joint using the Roberts' corrugations 11.

Although the present invention includes an inner liners, those liners of Applicants' two joined pipe sections in the relevant claims simply butt together to form a continuous smooth inner-wall. In other words, the inner liner (of certain of Applicant's presently claimed inventions) is not Applicant's claimed engagement structure (the engagement/joint that connects two similarly formed pipe sections together). As previously noted, in certain alternative embodiments, the liner could also provide or form some type of "engagement" between adjacent pipe sections, but in the present claims, that would be an engagement in addition to the corrugation engagement structures presently claimed.

The bell fitting of Roberts, referred to in the industry as the female end, is formed as part of Roberts' inner liner (not Roberts' corrugations 11). The inner liner bell of Roberts is sized and shaped in a fixed configuration so that it overlaps the inner spigot of the adjacent adjoining inner liner pipe structure (rather than being sized and shaped to grip the adjacent pipe section).

Applicant's present inner liner butt joint is in stark contrast to Roberts, and in fact (in that aspect) uses the prior art "inner liner butt joint" over which Roberts himself is trying to improve (see the above quote from Roberts, col. 1, l. 27-40). In other words, the present invention teaches away from Roberts fixed configuration bell and spigot joint. The male and female members of the present invention (in the form covered by the present claims) are formed from the **outer corrugated wall** portion of the pipe structures. Roberts requires the inner liner wall pipe have a dedicated bell and spigot aspect to it, sized and shaped to fit over and slide into position to be

"sealed" via an O-ring or welding sealant 16. Without that O-ring or welding sealant 16, Roberts' device would not even be "joined", at least not in any sealed manner. Although sealant can be used with various embodiments of the present invention, embodiments of Claim 2 provide engagement between adjacent pipes, which engagement is not dependent upon some separate "sealant" element 16.

As indicated above, the Roberts corrugations of the outer pipe at the spigot end are undercut so as to slide over and provide crush resistance to the joint that is formed when the spigot of one composite pipe section is inserted into and engaged with the bell of an adjacent composite pipe section. Roberts' corrugated portion 11 protects the inner liner bell and spigot joint. Clearly the corrugated pipe in Roberts is distinct, only protecting the joint formed by the bell and spigot of the inner liner.

In view of the remarks set forth above, it is thought that the application is now in condition for allowance, notice whereof is respectfully requested of the Examiner.

If the Examiner has any questions regarding the foregoing, or if the Examiner would like to discuss any remaining or new issues regarding this communication, the Examiner is invited to contact the Applicant's representative at (949) 718-6750.

Respectfully submitted,

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